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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FRANTZ, JESSICA L

ART UNIT

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3746

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/708,258	Applicant(s) TAMAGAWA ET AL.	
	Examiner Jessica L. Frantz	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-87 is/are pending in the application.
- 4a) Of the above claim(s) 12-22, 46-51, 62-63, and 73-78 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 64-72 and 79-87 is/are allowed.
- 6) ☒ Claim(s) 1-11, 23-45 and 52-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Species III in the reply filed on 4/30/2007 is acknowledged. The traversal is on the ground(s) that all three embodiments are similar. This is not found persuasive because all three species have substantially varying structure for the connection of the motor component to the impeller component requiring a diverging search and also each structure has a varying bearing structure (or lack thereof). However, all independent claims have been found to be generic as suggested by Applicant.

The requirement is still deemed proper and is therefore made FINAL.

### ***Drawings***

2. The drawings were received on 4/30/2007. These drawings are accepted.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 35 includes a product by process limitation "a rotor holder fixed to an outer marginal part of the shaft retaining portion either non-permanently or by means of an adhesive, crimping or welding." It is noted that the patentability of claims including these limitations is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger*, 18 USPQ2d 1796 (BPAI 1991).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 5-8, 36-37, 61 and 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angi et al. 4,659,951 in view of Schips et al. 5,803,707. Angi teaches the invention substantially as claimed including: a cantilever-type impeller 16 that connects with a motor component 10 to form a centrifugal fan motor for cooling portable electronic devices and other small devices, an impeller upper end (left side as shown in figure 1) corresponding to the impeller side of the fan motor and an impeller lower end (right side as shown in figure 1) corresponding to the motor-component side of the fan motor being defined along the impeller rotational axis (axis of shaft 52), the impeller comprising: a rotational force transmission portion (outer circumferential flanged portion of member 50 where it is attached to member 48) provided on the impeller lower end, for receiving driving force from the motor component; a lower endwall portion 50 fixed in association with the rotational force transmission portion, for structuring a wall 50; and an impeller blade unit 16 having plural blades, each of the blades at its lower end being fixed outer-marginally to the upper surface of the lower endwall portion (as clearly shown in figure 1) and each of the blades extending axially to its upper end, the blades together defining an opening (not labeled) at the impeller upper end and rotation of said impeller blade unit therein generating an airflow

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streaming along the rotational axis through the opening and towards said lower endwall on its upper surface. Angi further teaches the motor component having a rotary section 14 including shaft 52, a shaft retaining portion being the recess in member 50, and a rotor holder 48 and a rotor magnet 46 and a stationary section 12 including a stator 12 having a core 20 and coil windings 18 and a bearing 56,58, the bearing supporting the rotary section rotatably against the stationary section for rotation about the motor rotational axis and where both sides of the stator are located within the axial span of the bearing as shown in figure 1. Angi further teaches the bearings are sliding fluid dynamic bearings as shown in figure 1 and as discussed in Angi column 2, lines 50-68. Angi fails to teach the following claimed limitation that are taught by Schips: impeller blade unit being dimensioned such that given that  $2r$  represents the diameter to the outer circumference of the impeller blade unit and  $h$  represents the axial height of the impeller blade unit and  $\alpha$  represents a parameter, the relationships  $2r \leq h$  and  $2\pi rh = \alpha \pi r^2$  and  $4 \leq \alpha \leq 40$  are satisfied. As detailed in Schips column 11, lines 41-57, Schips suggests a diameter to length ratio of 1:5. Therefore, taking  $2r=1$  ( $r=0.5$ ) and  $h=5$  the relationships  $2r \leq h$  and  $2\pi rh = \alpha \pi r^2$  and  $4 \leq \alpha \leq 40$  are satisfied. Schips teaches this diameter to length ratio for the purpose of achieving very good operational characteristics (Schips column 11, lines 41-57). While a specific value of the radius is not disclosed, it would have been obvious to one having ordinary skill in the art at the time the invention was made to <sup>find or have found (your choice)</sup> found a value of  $r$  less than or equal to 12.5 mm for the specific task at hand and its associated working environment, since the claimed values are merely an optimum or workable range. It has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the dimensions as recited in Schips for the impeller of Angi for the purpose of achieving very good operational characteristics (Schips column 11, lines 41-57).

Regarding claims 7-8 and 42-43, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function, because apparatus claims cover what a device is, not what a device does (*Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)). Thus, if a prior art structure is capable of performing the intended use as recited in the preamble, or elsewhere in a claim, then it meets the claim. Therefore, since the modified invention of Angi in view of Schips is capable of operating at the recited speeds, it meets the limitations of the claims. Furthermore, in regards to the various relationships requiring the ratio of  $h/m$  (where  $m$  equals the axial bearing span) to fall within different ranges and the varying total length of the total structure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have found an appropriate range for the ratio of  $h/m$  according to the specific task at hand and the required amount of bearing support needed and also to find an appropriate total length of the structure based on desired output results, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a

claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Claims 3 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angi et al. 4,659,951 in view of Schips et al. 5,803,707 and further in view of Wang 5,988,979. The modified invention of Angi in view of Schips teaches the invention substantially as claimed but fails to teach the following claimed limitation as taught by Wang: at the upper end opening 18 of the impeller blade unit 10, the blades at their inside corners are beveled at least partially in an arcuate contour as clearly shown in figure 2 for the purpose of reducing undesirable turbulence and noise during operation as well as creating greater airflow through the inlet of the impeller (see Wang column 3, lines 52-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have beveled the upper end of the impeller as taught by Wang for the purpose of reducing undesirable turbulence and noise during operation as well as creating greater airflow through the inlet of the impeller (see Wang column 3, lines 52-62).

8. Claims 4, 9-11, 26-33, 35, 39, 44-45 and 53-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angi et al. 4,659,951 in view of Schips et al. 5,803,707 and further in view of Pauly 5,741,123. The modified invention of Angi in view of Schips teaches the invention substantially as claimed but fails to teach the following claimed limitation as taught by Pauly: the impeller is at least partially made of aluminum for the purpose of providing a high-strength yet light-weight impeller (Pauly column 3, lines 30-37). Therefore, it would have been obvious to one of ordinary skill in

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the art at the time of the invention to have at least partially made the impeller of aluminum for the purpose of providing a high-strength yet light-weight impeller (Pauly column 3, lines 30-37).

9. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Angi et al. 4,659,951 in view of Schips et al. 5,803,707 in view of Pauly 5,741,123 and further in view of Wang 5,988,979. The modified invention of Angi in view of Schips in view of Pauly teaches the invention substantially as claimed but fails to teach the following claimed limitation as taught by Wang: at the upper end opening 18 of the impeller blade unit 10, the blades at their inside corners are beveled at least partially in an arcuate contour as clearly shown in figure 2 for the purpose of reducing undesirable turbulence and noise during operation as well as creating greater airflow through the inlet of the impeller (see Wang column 3, lines 52-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have beveled the upper end of the impeller as taught by Wang for the purpose of reducing undesirable turbulence and noise during operation as well as creating greater airflow through the inlet of the impeller (see Wang column 3, lines 52-62).

10. Claims 23-25 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angi et al. 4,659,951 in view of Schips et al. 5,803,707 in view of Pauly 5,741,123 and further in view of Muszynski 5,814,908. While Angi teaches a rotor holder 48 made of magnetic material encompassing the rotary section 14 and the rotational force transmission portion (outer circumferential flanged portion of member 50 where it is attached to member 48) is fixed to the rotor holder, the invention of Angi in view of



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Schips in view of Pauly fails to teach the following claimed limitation as taught by Muszynski: the rotational force transmission portion 242 encloses and is fixed to the circumferential surface of the rotor holder 222 therefore enclosing at least a part of the periphery of the rotary section for the purpose of transmitting rotational force from the motor rotor to the impeller 100 as clearly shown in figure 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have attached the force transmission portion 242 to the circumferential surface of the rotor holder 222 for the purpose of transmitting rotational force from the motor rotor to the impeller 100 as clearly shown in figure 2.

***Allowable Subject Matter***

11. Claims 64-72 and 79-87 are allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Frantz whose telephone number is 571-272-5822. The examiner can normally be reached on Monday through Friday 8:30a.m. - 5:00p.m. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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